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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,499	03/25/2004	Hidekazu Miyairi	0756-7275	5721

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EXAMINER	
WEST, JEFFREY R	

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2857	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/808,499	MIYAIRI ET AL.	
	Examiner	Art Unit	
	Jeffrey R. West	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *See Continuation Sheet* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,3,11,18,26,28,32,34,37,39,42,44,45,47,50,52,53,55,58,60,69,71,74,76,77,79 and 82.

Continuation of Disposition of Claims: Claims rejected are 1,3,11,18,26,28,32,34,37,39,42,44,45,47,50,52,53,55,58,60,69,71,74,76,77,79 and 82.

DETAILED ACTION

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 3, 34, 39, 71, and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0016349 to Tsumura et al. in view of U.S. Patent No. 6,647,148 to Ozawa et al. and further in view of U.S. Patent Application Publication No. 2005/0041226 to Tanaka et al.

With respect to claim 3, Tsumura discloses a method for testing comprising irradiating a visible light on a surface of a semiconductor film (0027, lines 1-9), the

semiconductor film having a crystallinity that has been improved by irradiating an energy beam (0063, lines 1-17); photo-transferring a scattered light of the irradiated visible light to form an image (0097, lines 1-16), analyzing regions of the image to discriminate regions of luminance (0091, lines 1-12) and comparing values of luminances with a reference value which is determined for a demanded performance of the semiconductor element in order to evaluate the crystallinity of the semiconductor film having the crystallinity that has been improved (0076, lines 1-12).

With respect to claim 34, Tsumura discloses wherein the energy beam is a laser light (0111, lines 1-4).

With respect to claim 39, Tsumura discloses wherein the visible light is irradiated from a light source selected from the group consisting of a metal halide lamp, a halogen lamp, a tungsten lamp, a xenon lamp, a light emitting diode, and a fluorescent lamp (i.e. halogen lamp) (0098, lines 1-13).

With respect to claim 71, Tsumura discloses a manufacturing method of a semiconductor device, comprising: testing each of a plurality of semiconductor films crystallized by an energy beam (0088, lines 1-11) having different densities by the method for testing (0107, lines 1-6) and determining an irradiation energy density by a result of the testing to crystallize the semiconductor film (0107, lines 1-6 and 0110, line 1 to 0111, line 4).

Tsumura also discloses a method for testing a beam profile comprising irradiating an energy beam on a substrate on which an amorphous semiconductor film (0043, lines 1-5) is formed (0063, lines 1-17), irradiating a visible light on a surface of the

substrate (0027, lines 1-9) and photo-transferring the scattered light to form an image (0097, lines 1-16), analyzing regions of the image to discriminate regions of luminance (0091, lines 1-12) to test a profile of the energy beam (0088, lines 1-11, 0107, lines 1-6, and 0110, line 1 to 0111, line 4) and comparing values of luminances with a reference value which is determined for a demanded performance of the semiconductor element in order to evaluate the crystallinity of the semiconductor film having the crystallinity that has been improved (0076, lines 1-12).

As noted above, the invention of Tsumura teaches many of the features of the claimed invention and while the invention of Tsumura does teach determining acceptance based on comparing values of luminances with a reference value which is determined for a demanded performance of the semiconductor element in order to evaluate the crystallinity of the semiconductor film having the crystallinity that has been improved wherein the determining is based on determining locations on the surface of the film on the basis of a histogram (0076, lines 1-12), Tsumura does not include the specifics on how the image discriminator determines the corresponding locations.

Ozawa teaches a boundary line detecting method to determine areas with differences in light reflectance on a device surface (column 5, lines 12-17) comprising a camera to take a photograph of reflected light (column 6, lines 5-9), digitizing the photographed image to make a digital image (column 7, lines 63-65), and calculating an average luminance of the digital image (column 8, lines 16-20) by a computer (column 5, lines 60-63), sectioning basic units consisting of m rows and

n columns by dividing the digital image into n in the X direction and m in the Y direction in a predetermined analysis range (column 7, lines 25-31 and 59-63 and Figure 4A), calculating/testing average values of luminances of the n basic units aligned in the X direction per each of the m rows aligned in the Y direction (column 8, lines 16-20), obtaining an approximate line from relations between the positions in the Y direction and the average values of the luminance corresponding to the positions in the Y direction, and testing the device surface using a fluctuation obtained from relations between the approximate line and the average values of the luminance (column 8, lines 3-20 and Figure 4C).

It would have been obvious to one having ordinary skill in the art to modify the invention of Tsumura to include the specifics on how the image discriminator determines corresponding locations, as taught by Ozawa, because Ozawa suggests a corresponding method for determining borders caused by variations in brightness (column 5, lines 12-17), as applicable to the defect detection invention of Tsumura, that would have improved the accuracy of the defect detection by employing a method that is not limited by the arrangement of the photodetectors of the detection apparatus (column 2, lines 55-61).

As noted above, the invention of Tsumura and Ozawa teaches many of the features of the claimed invention and while the invention of Tsumura and Ozawa does teach calculating average values of the luminance corresponding to the positions in the Y direction of a surface scanned by an energy beam, the

combination does not explicitly indicate that the measurement is to be performed in a direction perpendicular to the scanning direction of the light.

Tanaka teaches a method and device for exposure control comprising scanning reticle stage in an x-direction using a light source (0129, lines 1-13), receiving reflected light (0131, lines 1-7) and measuring a distribution of luminance (0321, lines 1-8) wherein the measurement is performed in a direction perpendicular to the scanning direction of the light (0322, lines 1-5).

It would have been obvious to one having ordinary skill in the art to modify the invention of Tsumura and Ozawa to explicitly indicate that the measurement is to be performed in a direction perpendicular to the scanning direction of the light, as taught by Tanaka, because, as suggested by Tanaka, the combination would have improved the measurement of Tsumura and Ozawa by canceling any irregularity of luminance measured in the scanning direction caused by the scanning itself (0322, lines 1-5).

With respect to claim 79, since the invention of Tsumura teaches performing testing by employing a plurality of components in a crystallization chamber/container (0060, lines 1-7) and the invention of Ozawa teaches including a means for photographing the scattered light as part of the components for testing, the combination would have provided a means for photographing the scattered light in a crystallization chamber.

4. Claims 1, 11, 18, 32, 37, 69, and 77 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Tsumura et al. in view of Ozawa et al. and Tanaka et al. and further in view of U.S. Patent Application Publication No. 2004/0228526 to Lin et al.

As noted above, Tsumura in combination with Ozawa and Tanaka teaches many of the features of the claimed invention and while the invention of Tsumura, Ozawa, and Tanaka does teach measuring averages of luminance of an image to determine variations of a surface illuminated by a multi-color light source (Tsumura; 0098, lines 1-3), the combination does not specify determining a corrected saturation value for the image.

Lin teaches a system and method for color characterization using fuzzy pixel classification with application in color matching and color match location comprising means for inspecting a surface of an object (0003, lines 7-12) by dividing an image into regions of interest (0038, lines 1-12) and measuring a saturation value for the image (0112, lines 1-15) that has been corrected/normalized to a range from 0 to 255 (0110, lines 8-11).

It would have been obvious to one having ordinary skill in the art to modify the invention of Tsumura, Ozawa, and Tanaka to specify determining a corrected saturation value for the image, as taught by Lin, because the invention of Tsumura, Ozawa, and Tanaka does teach measuring averages of luminance of an image to determine variations of a surface illuminated by a multi-color light source and Lin suggests a corresponding method that would have improved the inspection method of Tsumura, Ozawa, and Tanaka by determining saturation values useful in

inspecting colored surfaces, such as the surface colored by the multi-color light source of Tsumura, Ozawa, and Tanaka, and provided increased accuracy in surface inspection by measuring saturation values that provide more information regarding color variations (0004, lines 1-10 and 0006, line 1 to 0007, line 8).

5. Claims 47 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsumura et al. in view of Ozawa et al. and Tanaka and further in view of U.S. Patent Application Publication No. 2003/0142298 to Ujihara et al.

As noted above, Tsumura in combination with Ozawa and Tanaka teaches many of the features of the claimed invention and while the invention of Tsumura, Ozawa, and Tanaka does teach applying a visible light to the surface of a semiconductor film, the visible light being the light from a halogen source, the combination does not specify the output of the halogen source.

Ujihara teaches an inspection method and inspection system of a surface of an article through the inspection of a photographed image of its surface (0002, lines 1-3) in order to determine the illumination variations of the surface, wherein the surface is illuminated by a light source (0009, lines 1-13) such as a halogen lamp with an intensity of 20,000 to 100,000 lux (0052, lines 1-9).

It would have been obvious to one having ordinary skill in the art to modify the invention of Tsumura, Ozawa, and Tanaka to specify a corresponding output of the halogen source, as taught by Ujihara, because the combination of Tsumura, Ozawa and Tanaka does teach implementing a halogen light source and Ujihara suggests a

corresponding intensity range suitable for a halogen lamp to carry out the inspection of Tsumura, Ozawa, and Tanaka (0052, lines 1-9).

6. Claims 45 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsumura et al. in view of Ozawa et al. Tanaka, and Lin and further in view of U.S. Patent Application Publication No. 2003/0142298 to Ujihara et al.

As noted above, Tsumura in combination with Ozawa, Tanaka, and Lin teaches many of the features of the claimed invention and while the invention of Tsumura, Ozawa, Tanaka, and Lin does teach applying a visible light to the surface of a semiconductor film, the visible light being the light from a halogen source, the combination does not specify the output of the halogen source.

Ujihara teaches an inspection method and inspection system of a surface of an article through the inspection of a photographed image of its surface (0002, lines 1-3) in order to determine the illumination variations of the surface, wherein the surface is illuminated by a light source (0009, lines 1-13) such as a halogen lamp with an intensity of 20,000 to 100,000 lux (0052, lines 1-9).

It would have been obvious to one having ordinary skill in the art to modify the invention of Tsumura, Ozawa, Tanaka, and Lin to specify a corresponding output of the halogen source, as taught by Ujihara, because the combination of Tsumura, Ozawa, Tanaka, and Lin does teach implementing a halogen light source and Ujihara suggests a corresponding intensity range suitable for a halogen lamp to carry out the inspection of Tsumura, Ozawa, Tanaka, and Lin (0052, lines 1-9).

7. Claims 28, 44, and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsumura et al. in view of Ozawa et al. and Tanaka and further in view of U.S. Patent No. 6,861,614 to Tanabe et al.

As noted above, Tsumura in combination with Ozawa and Tanaka teaches many of the features of the claimed invention and while the invention of Tsumura, Ozawa, and Tanaka does teach a method for testing a beam profile by irradiating a laser energy beam on a substrate on which an amorphous semiconductor film is formed, the combination does not specify that the laser is applied as a pulse.

Tanabe teaches an S-System for the formation of a silicon thin film and a semiconductor-insulating film interface comprising performing laser-induced crystallization using a laser pulse (column 2, lines 1-14 and column 20, line 60 to column 21, line 10).

It would have been obvious to one having ordinary skill in the art to modify the invention of Tsumura, Ozawa, and Tanaka to specify that the laser is applied as a pulse, as taught by Tanabe, because the combination, as suggested by Tanabe, would have provided a conventional method to enable one having ordinary skill in the art to carry out the crystallization improvement of Tsumura, Ozawa, and Tanaka thereby providing results in accordance with convention (column 2, lines 1-14 and column 20, line 60 to column 21, line 10).

8. Claims 26, 42, 74, and 82, are rejected under 35 U.S.C. 103(a) as being

unpatentable over Tsumura et al. in view of Ozawa et al., Tanaka, and Lin and further in view of U.S. Patent No. 6,861,614 to Tanabe et al.

As noted above, Tsumura in combination with Ozawa, Tanaka, and Lin teaches many of the features of the claimed invention and while the invention of Tsumura, Ozawa, Tanaka, and Lin does teach a method for testing a beam profile by irradiating a laser energy beam on a substrate on which an amorphous semiconductor film is formed, the combination does not specify that the laser is applied as a pulse.

Tanabe teaches an S-System for the formation of a silicon thin film and a semiconductor-insulating film interface comprising performing laser-induced crystallization using a laser pulse (column 2, lines 1-14 and column 20, line 60 to column 21, line 10).

It would have been obvious to one having ordinary skill in the art to modify the invention of Tsumura, Ozawa, Tanaka, and Lin to specify that the laser is applied as a pulse, as taught by Tanabe, because the combination, as suggested by Tanabe, would have provided a conventional method to enable one having ordinary skill in the art to carry out the crystallization improvement of Tsumura, Ozawa, Tanaka, and Lin thereby providing results in accordance with convention (column 2, lines 1-14 and column 20, line 60 to column 21, line 10).

9. Claims 52 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Tsumura et al. in view of Ozawa et al., Tanaka, and Tanabe and further in view of U.S. Patent Application Publication No. 2003/0142298 to Ujihara et al.

As noted above, Tsumura in combination with Ozawa, Tanaka, and Tanabe teaches many of the features of the claimed invention and while the invention of Tsumura, Ozawa, Tanaka, and Tanabe does teach applying a visible light to the surface of a semiconductor film, the visible light being the light from a halogen source, the combination does not specify the output of the halogen source.

Ujihara teaches an inspection method and inspection system of a surface of an article through the inspection of a photographed image of its surface (0002, lines 1-3) in order to determine the illumination variations of the surface, wherein the surface is illuminated by a light source (0009, lines 1-13) such as a halogen lamp with an intensity of 20,000 to 100,000 lux (0052, lines 1-9).

It would have been obvious to one having ordinary skill in the art to modify the invention of Tsumura, Ozawa, Tanaka, and Tanabe to specify a corresponding output of the halogen source, as taught by Ujihara, because the combination of Tsumura, Ozawa, Tanaka, and Tanabe does teach implementing a halogen light source and Ujihara suggests a corresponding intensity range suitable for a halogen lamp to carry out the inspection of Tsumura, Ozawa, Tanaka, and Tanabe (0052, lines 1-9).

10. Claims 50 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Tsumura et al. in view of Ozawa et al., Tanaka, Lin, and Tanabe and further in view of U.S. Patent Application Publication No. 2003/0142298 to Ujihara et al.

As noted above, Tsumura in combination with Ozawa, Tanaka, Lin, and Tanabe teaches many of the features of the claimed invention and while the invention of Tsumura, Ozawa, Tanaka, Lin, and Tanabe does teach applying a visible light to the surface of a semiconductor film, the visible light being the light from a halogen source, the combination does not specify the output of the halogen source.

Ujihara teaches an inspection method and inspection system of a surface of an article through the inspection of a photographed image of its surface (0002, lines 1-3) in order to determine the illumination variations of the surface, wherein the surface is illuminated by a light source (0009, lines 1-13) such as a halogen lamp with an intensity of 20,000 to 100,000 lux (0052, lines 1-9).

It would have been obvious to one having ordinary skill in the art to modify the invention of Tsumura, Ozawa, Tanaka, Lin, and Tanabe to specify a corresponding output of the halogen source, as taught by Ujihara, because the combination of Tsumura, Ozawa, Tanaka, Lin, and Tanabe does teach implementing a halogen light source and Ujihara suggests a corresponding intensity range suitable for a halogen lamp to carry out the inspection of Tsumura, Ozawa, Tanaka, Lin, and Tanabe (0052, lines 1-9).

Response to Arguments

11. Applicant's arguments filed September 28, 2009, have been fully considered but they are not persuasive.

Applicant argues:

> Regarding claim 3, the Official Action implicitly concedes that Tsumura does not teach a fluctuation obtained from relations between an approximate line and average values of luminances and explicitly concedes that "Tsumura does not include the specifics on how the image discriminator determines the corresponding locations" (pages 4-5, Paper No. 20090521). The Official Action asserts that "Ozawa teaches ... testing the device using a fluctuation obtained from relations between the approximate line and the average values of the luminance (column 8, lines 3-20 and Figure 4C)" (page 5, Id.; emphasis added). Although the Official Action may be asserting that the curved line in Figure 4C of Ozawa corresponds with the approximate line of the present claims, the Official Action does not make clear what specific portion of Ozawa corresponds to the recited "fluctuation" or "reference value" of the present claims.

With respect to claim 3, the Examiner maintains that Tsumura discloses a method for testing comprising irradiating a visible light on a surface of a semiconductor film (0027, lines 1-9), the semiconductor film having a crystallinity that has been improved by irradiating an energy beam (0063, lines 1-17); photo-transferring a scattered light of the irradiated visible light to form an image (0097, lines 1-16), analyzing regions of the image to discriminate regions of luminance (0091, lines 1-12) and comparing values of luminances with a reference value which is determined for a demanded performance of the semiconductor element in order to evaluate the crystallinity of the semiconductor film having the crystallinity that has been improved (0076, lines 1-12).

Therefore, while the invention of Tsumura does teach determining acceptance based on comparing values of luminances with a reference value which is

determined for a demanded performance of the semiconductor element in order to evaluate the crystallinity of the semiconductor film having the crystallinity that has been improved wherein the determining is based on determining locations on the surface of the film on the basis of a histogram (0076, lines 1-12), Tsumura does not include the specifics on how the image discriminator determines the corresponding locations.

The Examiner also maintains that Ozawa teaches a boundary line detecting method to determine areas with differences in light reflectance on a device surface (column 5, lines 12-17) comprising a camera to take a photograph of reflected light (column 6, lines 5-9), digitizing the photographed image to make a digital image (column 7, lines 63-65), and calculating an average luminance of the digital image (column 8, lines 16-20) by a computer (column 5, lines 60-63), sectioning basic units consisting of m rows and n columns by dividing the digital image into n in the X direction and m in the Y direction in a predetermined analysis range (column 7, lines 25-31 and 59-63 and Figure 4A), calculating/testing average values of luminances of the n basic units aligned in the X direction per each of the m rows aligned in the Y direction (column 8, lines 16-20), obtaining an approximate line from relations between the positions in the Y direction and the average values of the luminance corresponding to the positions in the Y direction, and testing the device surface using a fluctuation obtained from relations between the approximate line and the average values of the luminance (column 8, lines 3-20 and Figure 4C).

With respect to "testing the device using a fluctuation obtained from relations between the approximate line and the average values of the luminance", specifically, with respect to what corresponds to the recited "fluctuation" or "reference value", the Examiner first asserts that Tsumura already discloses comparing values of luminances with a reference value which is determined for a demanded performance of the semiconductor element in order to evaluate the crystallinity of the semiconductor film having the crystallinity that has been improved, specifically:

> Although the present embodiment decides acceptable-ness/unacceptable-ness based on a threshold value of the reflectivity, the threshold value may change with the film thickness. On the surface of the p-Si substrate, however, the defective positions are scattered in many cases and therefore the most of the regions is non-defective, so that the surface of the p-Si substrate may be scanned thoroughly to then obtain a histogram of the reflectivity in order to decide a region which does not fall in a population of the acceptable ones to be non-acceptable. By this method, it is possible to accurately identify a defective position even with the threshold value fluctuating with each of the p-Si substrates. (0076, lines 1-12).

As can be seen by the cited section, Tsumura discloses comparing a plurality of reflectivity values to a threshold (i.e. reference value) to determine acceptability of the film.

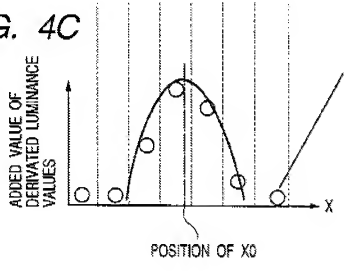
Ozawa then discloses "testing the device using a fluctuation obtained from relations between the approximate line and the average values of the luminance", by obtaining a corresponding peak (i.e. fluctuation) from relations between an approximate line (i.e. curved line) and average values of luminance (i.e. mean luminance values) specifically:

In each of the rows corresponding to X coordinate positions "151," "152," . . . of the unit blocks arranged in Y direction, that is, in each of the row with peak values positioned therein on the image and the rows adjacent thereto, the luminances of unit blocks are added.

FIG. 4C represents added luminance values graphically with respect to each of the rows arranged in Y direction. In each of the rows of X coordinate positions "151," "152," "153," luminance values are added and then compared for each row. In the same figure, if a curved line connecting the added values is drawn, a peak position (a predicted peak position) of that curved line can be specified to be the position of the boundary line of the slider edge portion X0.

Alternatively, there may be adopted a method wherein, in each of the rows extending in Y direction, a mean luminance value in unit blocks pixels) is determined to draw the curved line shown in FIG. 4C, and a peak value of the curved line is specified to be the position of the edge portion X0. (column 8, lines 3-20).

FIG. 4C



Applicant argues:

Also, the above-referenced features of the present invention have a remarkable effect, for example, the present method enables crystallization with optimal energy at all times (page 10, lines 16-18). The Applicant respectfully submits that Ozawa merely teaches a method for determining borders. As such, the Applicant respectfully submits that Ozawa does not teach or suggest a fluctuation obtained from relations between an approximate line and average values of luminances. As such, Ozawa does not cure the deficiencies in Tsumura. That is, Tsumura and Ozawa do not teach or suggest comparing a

fluctuation obtained from relations between an approximate line and average values of corrected saturations with a reference value which is determined for a demanded performance of a semiconductor element in order to evaluate a crystallinity of a semiconductor film having crystallinity that has been improved.

As explained above, while Applicant argues that "Ozawa does not teach or suggest a fluctuation obtained from relations between an approximate line and average values of luminances", the Examiner maintains that Ozawa does teach a fluctuation obtained from relations between the approximate line and the average values of the luminance, by obtaining a corresponding peak (i.e. fluctuation) from relations between an approximate line (i.e. curved line) and average values of luminance (i.e. mean luminance values).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

U.S. Patent Application Publication No. 2002/0059896 to Yamaguchi et al. teaches an optical processing apparatus and optical processing method.

U.S. Patent Application Publication No. 2004/0203219 to Kasahara et al. teaches a laser apparatus and laser annealing method.

JP Patent Application Publication No. 2000-114174 to Hiroyuki teaches manufacture of semiconductor film, manufacture of thin-film transistor, active substrate and annealing equipment.

JP Patent Application Publication No. 2002-217107 to Wada et al. teaches method of evaluating polysilicon, thin film transistor manufacturing system and method of the same.

JP Patent Application Publication No. 2000-031229 to Terada teaches inspection method of semiconductor thin film and manufacture of semiconductor thin film by use thereof.

U.S. Patent No. 5,835,614 to Aoyama et al. teaches an image processing apparatus.

U.S. Patent No. 5,091,963 to Litt et al. teaches a method and apparatus for inspecting surfaces for contrast variations.

U.S. Patent No. 6,836,532 to Durst et al. teaches a diffraction system for biological crystal screening.

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing

date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (571)272-2226. The examiner can normally be reached on Monday through Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571)272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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